TERMINATING MARKER
CROSS CONNECTIONS
NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes the method of making terminating marker cross connections in No. 1 crossbar offices. These cross connections apply to terminating marker per SD-25283-01.

1.02 This section is reissued to add information on arrangements for multioffices designed for a maximum of 12 number group connectors per office, and to add cross-connection information on the busy signal route relay feature and PBX block allotter circuit. Since this is a general revision, the arrows ordinarily used to indicate changes have been omitted.

1.03 The methods covering the assignments and cross connections are as follows:

(A) Cross Connections for Translation of Hundreds Number into Terms of Number Group and Hundreds Block

(B) Cross Connections for Split Hundreds

(C) Cross Connections of Allotter Relay Contacts

(D) Cross Connections for Line Link Load Registration

(E) Cross Connections for Channel Preference

(F) Cross Connections for Intercepting Relays

(G) Cross Connections for Blank Numbers and Temporary Routing of Blocks of 100 Lines to Intercepting Operator

(H) Cross Connections for Nonconsecutive End-of-Block Hunting

(I) Extra Number Translator Points - Special Markers Only

(J) Line Overload Control

(K) Cross Connections for Busy Signal Route Relay (BBT)

(L) Cross Connections on Miscellaneous Frames for PBX Block Allotter Circuit

1.04 No description is included for other cross connections which are determined by the size of the installation and cannot be varied. A description of the cross connections for routes to temporary intercepting facilities used during the cutover period has also been omitted because it is expected that the majority of these will be made by the installer before the office is turned over to the customer.

1.05 Cross-connection work should ordinarily be performed during periods of very light load, since terminating markers must be removed from service, and in some cases, the number group connector is also removed from service.

1.06 If the transfer of any lines or numbers is involved, provision should be made to coordinate this work.

1.07 Cross-connection work not involving rearrangement of the SH terminal strip connections at the block relay frame may be performed by dividing the markers into two groups (including one special marker in each group). One of the two groups should be made busy. After the required cross connections have been made and the markers in this group tested, the markers should be returned to service. This procedure should then be repeated on the second group.

1.08 Cross-connection work involving rearrangement of the SH terminal strip cross connections at the block relay frame will require that calls for the hundred blocks involved be intercepted while this work is in progress. This work should be coordinated with the traffic department so that arrangements may be made to give out of order reports or temporary changes for calls to lines involved. One of the two groups of terminating markers as described in Paragraph 1.07 should be made busy. After the required cross connections have been made and this first group of markers tested, they shall be temporarily arranged to intercept calls for the "hundreds" series that is to be changed, and placed in service. The second or remaining group of markers should then be made busy and the cross-connection changes made at the block relay frame. As soon as the block relay frame work has been completed, the first group of markers that have had cross-connection changes made in them, should have the temporary intercept strapping removed, one at a time and the new arrangement tested, starting with the special marker. After this first group of markers has been placed in service, the cross connections should be made on the second group

of markers that have been made busy. Individual markers in this second group can be restored to service as soon as the cross connections have been completed and the circuits tested.

1.09 **The method of running cross connections and placing straps on the terminating marker frame is covered in BSP Section 216-712-801. The method of running cross connections on the line distributing frame is covered in BSP Section 216-719-801.**

2. APPARATUS

2.01 Soldering Tools and Materials as required.

2.02 Bell System Pliers as required.

2.03 No. 322A (make-busy) Plugs as required.

2.04 The following types of wire, as required:

No. 22 Gauge Type K Cross-Connection Wire

Black (P-357221)
Red (P-357222)
Green (P-357223)
White (P-357224)
Brown (P-357225)

No. L 20-S Brown Wire

No. 22 Gauge Bare Strap Wire (P-314952)

3. PREPARATION

3.01 Refer to Figs. 1, 2, 3, and 4 for terminal-strip arrangement and designation. The terminal-strip letters referred to throughout this practice are shown on each side of these terminal-strip drawings. The dotted lines indicate strappings on the wiring side. The terminal-strip numbers that are referred to in Tables 1, 2, 3, and 4 are shown on the top and bottom of Figs. 1, 2, 3, and 4. For example E-3 in these tables means the fifth terminal strip down from the top and the third section from the left of this E terminal strip.

3.02 The lettering and numbering along the side and the bottom of each section of terminal strip shows the location of the various punchings. For example, Fig. 5 shows the fourth section of the D terminal strip of Fig. 1. Terminals 0-9 of the NG-ST punchings are located on the first ten terminals on the bottom row, starting from the left. Terminals 10-19 are on the second row directly above the first row. Terminals 20-24 are on the third row from the bottom and are the first five terminals from the left. The remaining five terminals in this row are blank. The NG-HB punchings are located on the right half of this block in a manner similar to that described above. Terminals 0-19 of the first and second group of AL-TB punchings are located respectively on the fourth and fifth rows from the bottom of this strip. The other terminal strips are, in general, numbered in a similar manner.

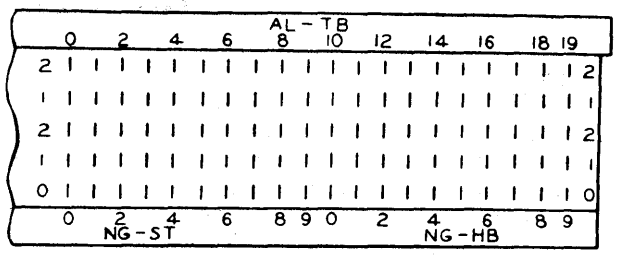

Fig. 5 - Terminal Numbering

Note: The row numbers refer to the rows of terminal punchings of the terminal strip starting with the row closest to the floor and numbering from the bottom up.

4. METHOD

(A) Cross Connections for Translation of Hundreds Number into Terms of Number Group and Hundreds Block

4.01 The ST (start) lead for each hundreds series, 00 to 99 (when equipped) is terminated at the D terminal strip, and shall be cross-connected to the proper NG-ST (number group start) terminal (terminal strip C) in accordance with the number group with which the hundred numbers are associated, except when the "hundreds" is split as described in Paragraph 4.04.

4.02 The HB (hundred block) lead for each hundreds series 00-99 (when equipped) is terminated at the D terminal strip for single office arrangements and at terminal strips B and D for multioffice arrangements. The HB terminal shall be cross-connected to one of the NG-HB (number group hundred block) terminals 0 to 24, or 0 to 11 in the case of multioffices arranged for a maximum of 12 number group connectors per office (terminal strip C) to operate the proper HB relay at the block relay frame. This HB cross connection is not required when the "hundreds" is split.

(B) Cross Connections for Split Hundreds

4.03 When it is desired to split a series of 100 numbers for the purpose of alloting, establishing free lines, or effecting nonconsecutive end-of-block hunting, the cross connections of the ST and HB leads described

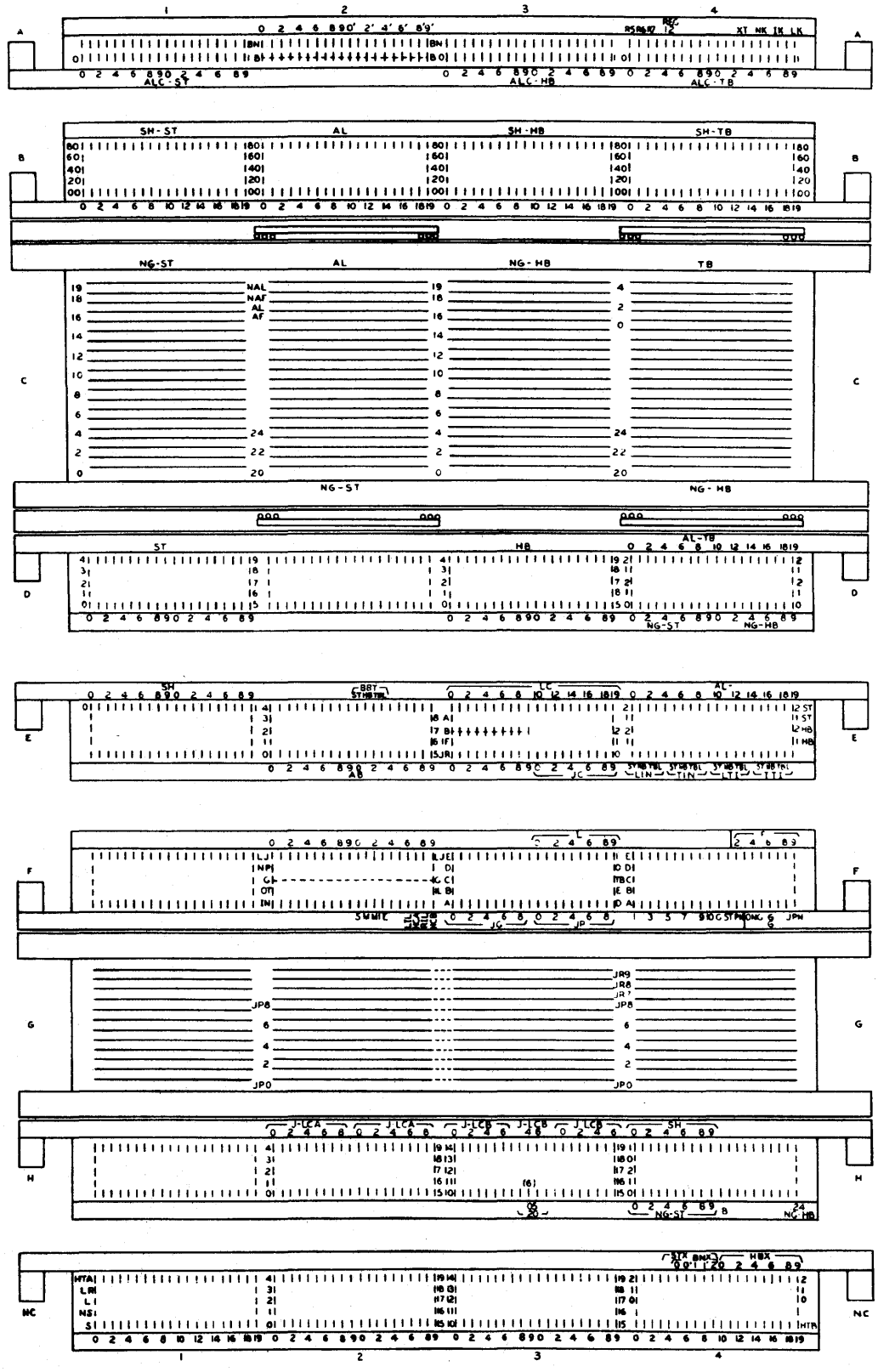

Fig. 1 - Single Office Arrangement (Used in Earlier Offices)

TABLE 1 (Associated with Fig. 1)

Punching	Numbering	XTS	Approx. No	Ckt. Fig.	B.S.P. Method	Name
ST	00-99	D-1	100	3	A	Start) Translator
HB	00-99	D-3	100	3	A	Hundred Block) Points
NG-ST	0-24	(C-1&2	25	7	A)	
		(D-4	25	7	C)	NGC Frame - ST
		(H-4	25	7	I)	
NG-HB	0-24	(C-3&4	25	7	A)	
		(D-4	25	7	C)	NGC Frame - HB
		(H-4	1	7	I)	
SH-ST	(0-19)(00,20,40,60,80)	B-1	100	9	B	Split Hundred - ST
SH-HB	(0-19)(00,20,40,60,80)	B-3	100	9	B	Split Hundred - HB
SH-TB	(0-19)(00,20,40,60;80)	B-4	100	9	B	Split Hundred - TB
AL	(0-19)(00,20,40,60,80)	B-2	100	9	B	Allotter
SH	(0-19)	(E-1	20	9	B)	Split Hundred
		(H-4	20	9	I)	
ALC-ST	(00-19)	A-1	20	11	B	Allotter Common - ST
ALC-HB	(00-19)	A-3	20	11	B	Allotter Common - HB
ALC-TB	(00-19)	A-4	20	11	B	Allotter Common - TB
AL-ST	1 (0-19), 2 (0-19)	E-4	40	11	C	AL-ST 1st, or 2nd Step
AL-HB	1 (0-19), 2 (0-19)	E-4	40	11	C	AL-HB 1st, or 2nd Step
AL-TB	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-TB 1st, or 2nd Step
TB	0-4	(C-4	5	11	B)	
		(F-3	5	11	F)	Twenty Block
NAL		C-2	1	11	B	No Allotter
NAF		C-2	1	11	B	No Allotter - Free Line
AL		C-2	1	11	B	Allotter
AF		C-2	1	11	B	Allotter - Free Line
ST-BBT		E-2	1	AH	K	)
HB-BBT		E-2	1	AH	K	)
TB-BBT		E-2	1	AH	K	) Busy-Back Tone Circuit
L-BBT		E-2	1	AH	K	)
ST-LIN		E-4	1	19	F	ST)
HB-LIN		E-4	1	19	F	HB) Local
TB-LIN		E-4	1	19	F	TB) Intercept
L-LIN		E-4	1	19	F	L)
ST-TIN		E-4	1	19	F	ST)
HB-TIN		E-4	1	19	F	HB) Toll
TB-TIN		E-4	1	19	F	TB) Intercept
L-TIN		E-4	1	19	F	L)
ST-LTI		E-4	1	19	F	ST)
HB-LTI		E-4	1	19	F	HB) Local Trouble
TB-LTI		E-4	1	19	F	TB) Intercept
L-LTI		E-4	1	19	F	L)
ST-TTI		E-4	1	19	F	ST)
HB-TTI		E-4	1	19	F	HB) Toll Trouble
TB-TTI		E-4	1	19	F	TB) Intercept
L-TTI		E-4	1	19	F	L)
L	00-19	F-3	20	10	F	Line
BN	0-9, 0'-9'	A-2	20	1	G	Blank Number
B		(A-2	20	19	G)	
		(E-3	10	19	G)	Block Blank
		(H-4	1	19	I)	
R	5,6,7	A-4	3	17	D	Resistance
REG	1,2	A-4	2	17	D	Register
S		F-2	1	17	E	Start
M		F-2	1	17	E)	
M1		F-2	1	17	E)	Mid-point
E		F-2	1	17	E	End
IN	0-9	F-2	10	17	E	In
OT	0-9	F-2	10	17	E	Out
STX	00-24	NC-4	25	3	I	Start) Extra
HBX	00-24	NC-4	25	3	I	Hundred Block) Number
BNX	0-2, 0'-1'	NC-4	5	B	I	Blank Extra) Translator
						Number (500)) Points

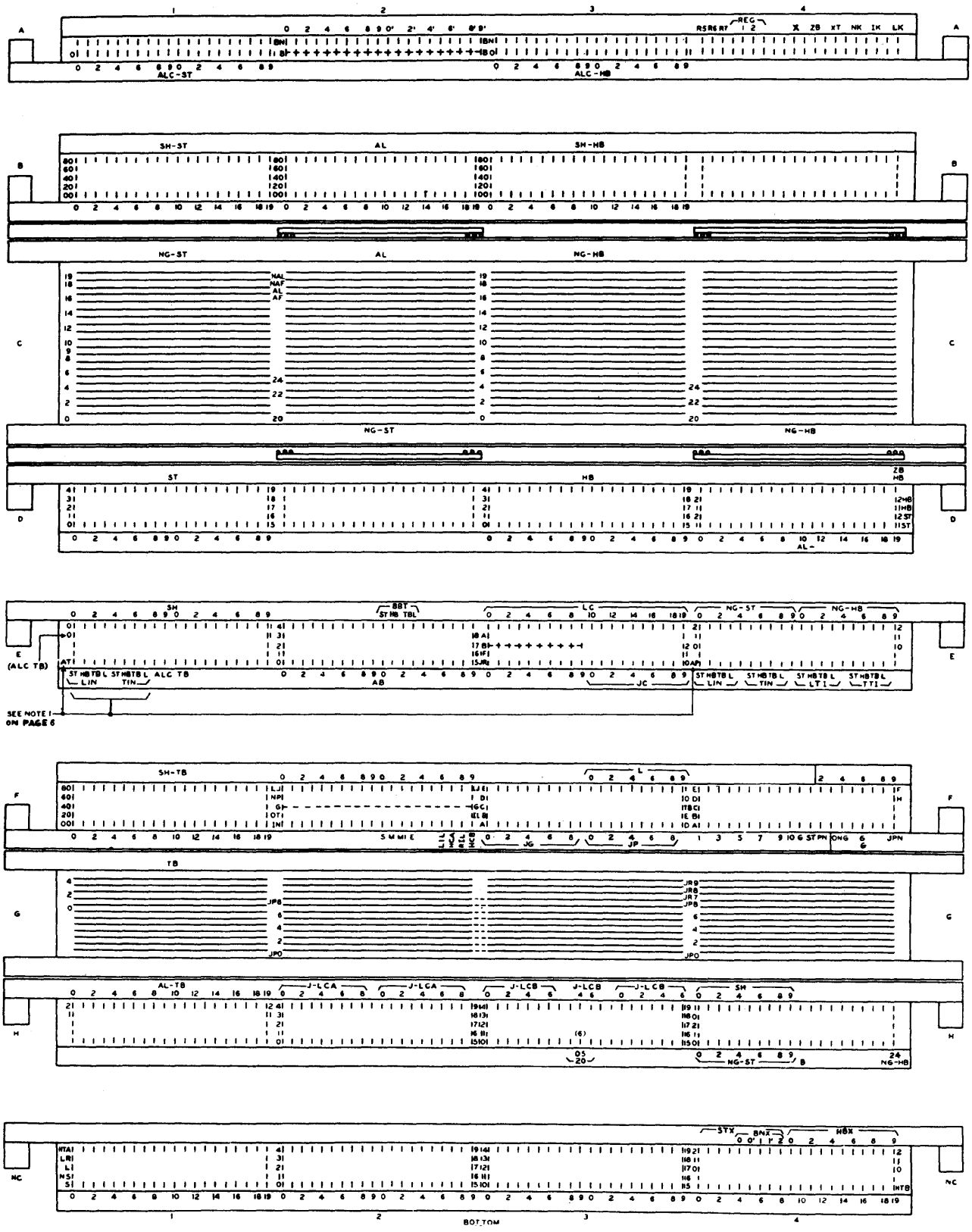

Fig. 2 - Single Office Arrangement (Used in Later Office)

TABLE 2 (Associated with Fig. 2)

Punching	Numbering	XTS	Approx. No.	Ckt. Figure	B.S.P. Method	Name
ST	00-99	D-1	100	3	A	Start) Translator
HB	00-99	D-3	100	3	A	Hundred Block) Points
NG-ST	0-24	C1&2 E-4,H-4	25	7	A,C,I	NGC Frame - ST
NG-HB	0-24	C3&4 E-4,H-4	25	7	A,C,I	NGC Frame - HB
SH-ST	(0-19)(00,20,40,60,80)	B-1	100	9	B	Split Hundred - ST
SH-HB	(0-19)(00,20,40,60,80)	B-3	100	9	B	Split Hundred - HB
SH-TB	(0-19)(00,20,40,60,80)	F-1	100	9	B	SH - Twenty Block
AL	(0-19)(00,20,40,60,80)	B-2	100	9	B	Allotter
SH	0-19	E-1 H-4	20	9	B) I)	Split Hundred
ALC-ST	00-19	A-1	20	11	B	Allotter Common - ST
ALC-HB	00-19	A-3	20	11	B	Allotter Common - HB
ALC-TB	00-19	E-1	20	11	B	Allotter Common - TB
AL-ST	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-ST 1st, or 2nd Step
AL-HB	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-HB 1st, or 2nd Step
AL-TB	1 (0-19), 2 (0-19)	H-1	40	11	C	AL-TB 1st, or 2nd Step
TB	0-4	F-3 G-1	5	11	B) F)	Twenty Block
NAL	-	C-2	1	11	B	No Allotter
NAF	-	C-2	1	11	B	No Allotter - Free Line
AL	-	C-2	1	11	B	Allotter
AF	-	C-2	1	11	B	Allotter - Free Line
ST-BBT		E-2	1	AH	K	)
HB-BBT		E-2	1	AH	K	)
TB-BBT		E-2	1	AH	K	)Busy-Back Tone Circuit
L-BBT		E-2	1	AH	K	)
ST-LIN		E-4	1	G or H	F	ST)
HB-LIN		or	1	G or H	F	HB) Local
TB-LIN		E-1&4	1	G or H	F	TB) Intercept
L-LIN			1	G or H	F	L)
ST-TIN		E-4	1	G or H	F	ST)
HB-TIN		or	1	G or H	F	HB) Toll
TB-TIN		E-1&4	1	G or H	F	TB) Intercept
L-TIN			1	G or H	F	L)
ST-LTI		E-4	1	C or D	F	ST)
HB-LTI		E-4	1	C or D	F	HB) Local Trouble
TB-LTI		E-4	1	C or D	F	TB) Intercept
L-LTI		E-4	1	C or D	F	L)
ST-LTI		E-4	1	C or D	F	ST)
HB-TTI		E-4	1	C or D	F	HB) Toll Trouble
TB-TTI		E-4	1	C or D	F	TB) Intercept
L-TTI		E-4	1	C or D	F	L)
L	00-19	F-3	20	10	F	Line
BN	0-9, 0'-9'	A-2	20	•C	G	Blank Number
B		(A-2	20	19	G)	Block Blank
		(E-3	10	19	G)	
		(H-4	1	19	G)	
R	5, 6, 7	A-4	3	17	D	Resistance
REG	1, 2	A-4	2	17	D	Register
S		F-2	1	17	E	Start
M		F-2	1	17	E)	Mid-point
M1		F-2	1	17	E)	
E		F-2	1	17	E	End
IN	0-9	F-2	10	17	E	In
OT	0-9	F-2	10	17	E	Out
ZB		A-4	1	2	J	ZB Relay
ZB-HB		D-4	1	2	J	ZB-HB
STX	00-24	NC-4	25	3	I	Start) Extra
HBX	00-24	NC-4	25	3	I	Hundred Block) Number
BNX	0-2, 0'-1'	NC-4	5	B	I	Blank Extra) Translator
						Number (500)) Points

Notes Applying to Figs. 2,3 & 4

1. Stenciling and associated wiring used only when a single office or office A is divided into a physical and a theoretical office.
2. Stenciling and associated wiring used only when office B is divided into a physical and a theoretical office.
3. Stenciling and wiring used only when separate busy signal routes for office A and office B are required.

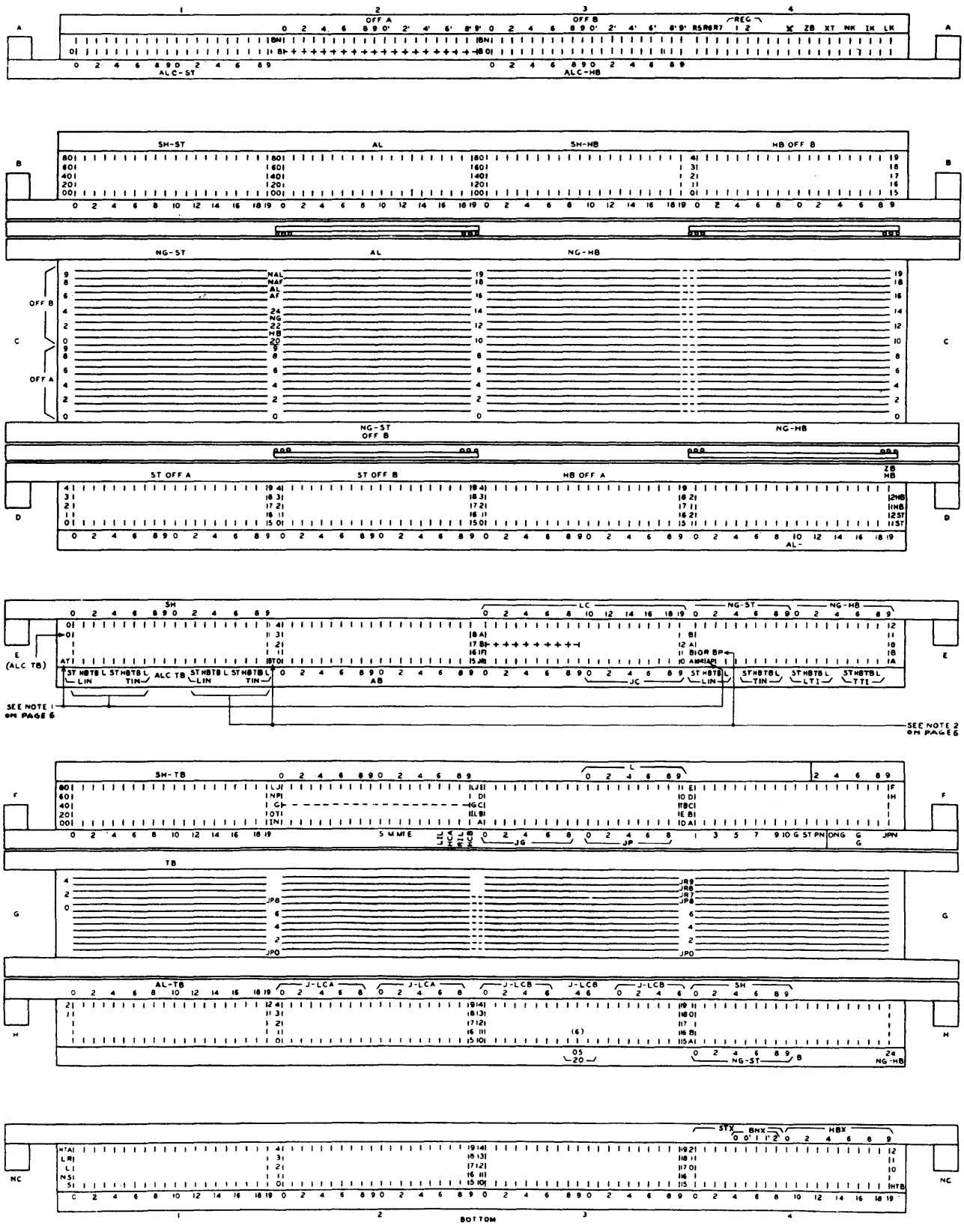

Fig. 3 - Multioffice Arrangement

TABLE 3 (Associated with Fig. 3)

Punching	Numbering	XTS	Approx. No.	Ckt. Figure	B.S.P. Method	Name	
ST							
OFF A	00-99 OFF A	D-1	100	3	A	ST Office A	Translator Points
OFF B	00-99 OFF B	D-2	100	3	A	ST Office B	
HB							
OFF A	00-99 OFF A	D-3	100	3	A	HB Office A	
OFF B	00-99 OFF B	B-4	100	3	A	HB Office B	
NG-ST							
OFF A	0-9 OFF A	C-1, E-4, H-4.	10	7	A,C,I	NG-ST - Office A	
OFF B	0-9 OFF B	C-1&2, E-4, H-4.	10	7	A,C,I	NG-ST - Office B	
NG-HB	0-24	C-2,3&4 E-4,H-4	25	7	A,C,I	NGC Frame - HB	
SH-ST	(0-19)(00,20,40,60,80)	B-1	100	9	B	Split Hundred - ST	
SH-HB	(0-19)(00,20,40,60,80)	B-3	100	9	B	Split Hundred - HB	
SH-TB	(0-19)(00,20,40,60,80)	F-1	100	9	B	SH - Twenty Block	
AL	(0-19)(00,20,40,60,80)	B-2	100	9	B	Allotter	
SH	0-19	(E-1 (H-4	20	9	B) I)	Split Hundred	
ALC-ST	00-19	A-1	20	11	B	Allotter Common - ST	
ALC-HB	00-19	A-3	20	11	B	Allotter Common - HB	
ALC-TB	00-19	E-1	20	11	B	Allotter Common - TB	
AL-ST	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-ST 1st, or 2nd Step	
AL-HB	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-HB 1st, or 2nd Step	
AL-TB	1 (0-19), 2 (0-19)	H-1	40	11	C	AL-TB 1st, or 2nd Step	
TB	0-4	(F-3 (G-1	5	11	B) F)	Twenty Block	
NAL	-	C-2	1	11	B	No Allotter	
NAF	-	C-2	1	11	B	No Allotter - Free Line	
AL	-	C-2	1	11	B	Allotter	
AF	-	C-2	1	11	B	Allotter - Free Line	
ST-LIN		E-4	1	G or H	F	ST	Local Intercept
HB-LIN		or	1	G or H	F	HB	
TB-LIN		E-1&4	1	G or H	F	TB	
L-LIN			1	G or H	F	L	
ST-TIN		E-4	1	G or H	F	ST	Toll Intercept
HB-TIN		or	1	G or H	F	HB	
TB-TIN		E-1&4	1	G or H	F	TB	
L-TIN			1	G or H	F	L	
ST-LTI		E-4	1	C or D	F	ST	Local Trouble Intercept
HB-LTI		E-4	1	C or D	F	HB	
TB-LTI		E-4	1	C or D	F	TB	
L-LTI		E-4	1	C or D	F	L	
ST-TTI		E-4	1	C or D	F	ST	Toll Trouble Intercept
HB-TTI		E-4	1	C or D	F	HB	
TB-TTI		E-4	1	C or D	F	TB	
L-TTI		E-4	1	C or D	F	L	
L	00-19	F-3	20	10	F	Line	
BN							
†OFF A	0-9, 0'-9'	A-2	20	D	G	Blank Number - Off. A	
†OFF B	0-9, 0'-9'	A-3	20	D	G	Blank Number - Off. B	
B		(A-2 (E-3 (H-4	20 10 1	19 19 19	G) G) G)	Block Blank	
R	5, 6, 7	A-4	3	17	D	Resistance	
REG	1, 2	A-4	2	17	D	Register	
S		F-2	1	17	E	Start	
M		F-2	1	17	E	Mid-point	
M1		F-2	1	17	E		
E		F-2	1	17	E	End	
IN	0-9	F-2	10	17	E	In	
OT	0-9	F-2	10	17	E	Out	
ZB		A-4	1	2	J	ZB Relay	
ZB-HB		D-4	1	2	J	ZB-HB	
STX	00-24	NC	25	3	I	Start Hundred Block	Extra Number Translator Points
HBX	00-24	NC	25	3	I		
BNX	0-2, 0'-1'	NC	5	B	I	Blank Extra Number (500)	

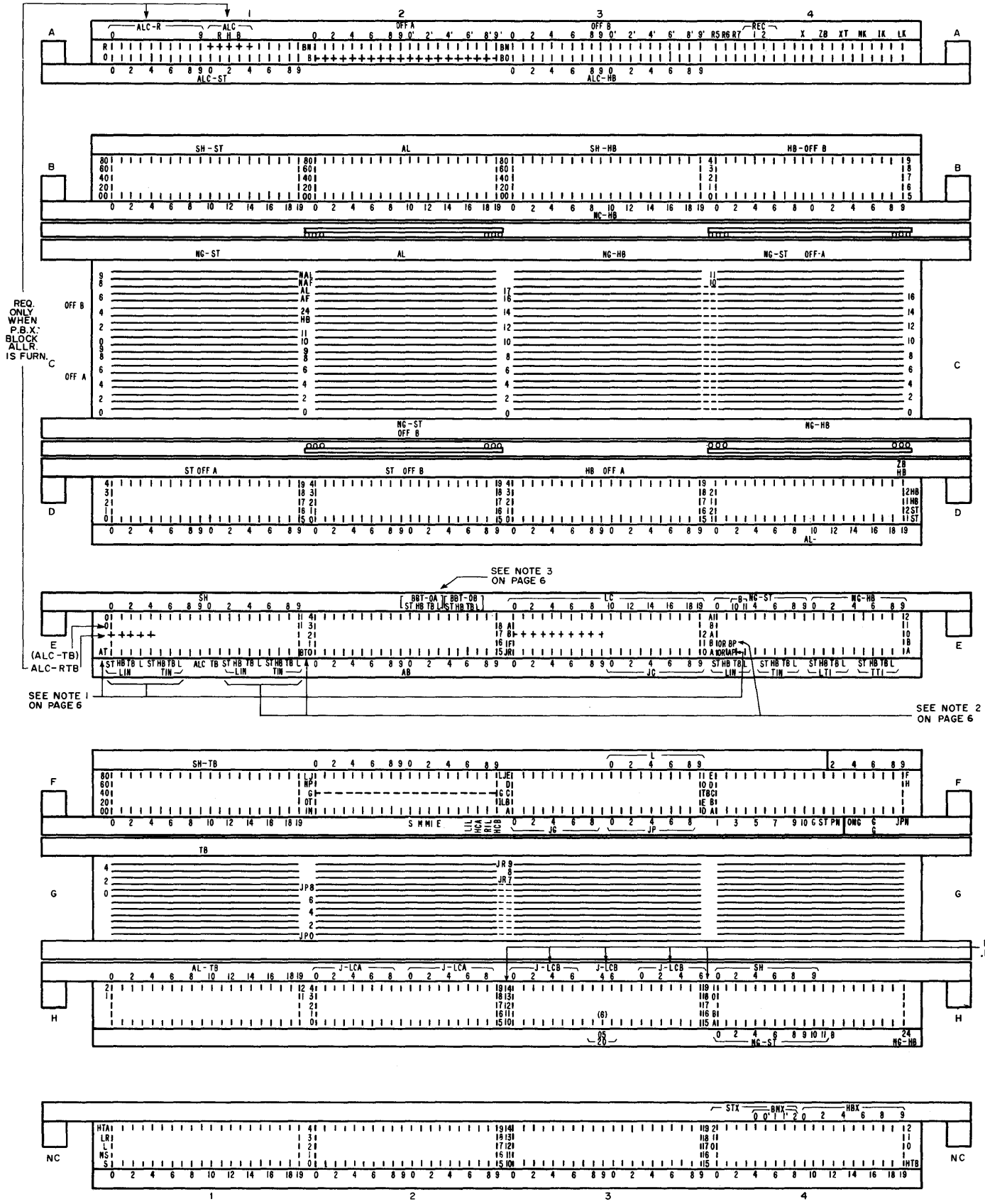

Fig. 4 - Multioffice Arrangement - 12 Number Group Connectors Per Office

TABLE 4 (Associated with Fig. 4)

Punching	Numbering	XTS	Approx. No.	Ckt. Fig.	BSP Method	Name
ST						
OFF A	00-99 OFF A	D-1	100	3	A	ST Office A)
OFF B	00-99 OFF B	D-2	100	3	A	ST Office B) Translator
HB						) Points
OFF A	00-99 OFF A	D-3	100	3	A,G	HB Office A)
OFF B	00-99 OFF B	B-4	100	3	A,G	HB Office B)
NG-ST						
OFF A	0-11 OFF A	C-1&4 E-4 H-4	12	7	A,C,F,I,K	NG-ST Office A
OFF B	0-11 OFF B	C-1&2 F-4 H-4	12	7	A,C,F,I,K	NG-ST Office B
NG-HB	0-17 & 24	C-2-3&4 E-4 H-4	19	7	A,C,F,I,J,K,L	NGC Frame HB
SH-ST	(0-19)(00,20,40,60,80)	B-1	100	9	B	Split Hundred - ST
SH-HB	(0-19)(00,20,40,60,80)	B-3	100	9	B	Split Hundred - HB
SH-TB	(0-19)(00,20,40,60,80)	F-1	100	9	B	SH - Twenty Block
AL	(0-19)(00,20,40,60,80)	B-2	100	9	B	Allotter
SH	0-19	E-1 H-4	20	9	B,I	Split Hundred
ALC-ST	00-19	A-1	20	11	B	Allotter Common - ST
ALC-HB	00-19	A-3	20	11	B	Allotter Common - HB
ALC-TB	00-19	E-1	20	11	B	Allotter Common - TB
AL-ST	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-ST 1st, or 2nd Step
AL-HB	1 (0-19), 2 (0-19)	D-4	40	11	C	AL-HB 1st, or 2nd Step
AL-TB	1 (0-19), 2 (0-19)	H-1	40	11	C	AL-TB 1st, or 2nd Step
ALC-R	0-9	A-1	10	AT	L	PBX Block Reg. - Route Relay
ALC-RHB		A-1	5	AT	L	PBX Block Reg. - Common HB
ALC-RTB		E-1	5	AT	L	PBX Block Reg. - Common TB
TB	0-4	F-3 G-1	5	11	B,F,K	Twenty Block
NAL	-	C-2	1	11	B	No Allotter
NAF	-	C-2	1	11	B	No Allotter - Free Line
AL	-	C-2	1	11	B	Alternate Number Group Allotter
AF	-	C-2	1	11	B	Alternate Number Group Allotter - Free Line
ST-BBT		E-2	1	AH	K	)
HB-BBT		E-2	1	AH	K	) Busy Back Tone
TB-BBT		E-2	1	AH	K	) Circuit
L-BBT		E-2	1	AH	K	)
ST-LIN		E-4	1	G or H	F	ST)
HB-LIN		or	1	G or H	F	HB) Local
TB-LIN		E-1&4	1	G or H	F	TB) Intercept
L-LIN			1	G or H	F	L)
ST-TIN		E-4	1	G or H	F	ST)
HB-TIN		or	1	G or H	F	HB) Toll
TB-TIN		E-1&4	1	G or H	F	TB) Intercept
L-TIN			1	G or H	F	L)
ST-LTI		E-4	1	C or D	F	ST)
HB-LTI		E-4	1	C or D	F	HB) Local Trouble
TB-LTI		E-4	1	C or D	F	TB) Intercept
L-LTI		E-4	1	C or D	F	L)
ST-TTI		E-4	1	C or D	F	ST)
HB-TTI		E-4	1	C or D	F	HB) Toll Trouble
TB-TTI		E-4	1	C or D	F	TB) Intercept
L-TTI		E-4	1	C or D	F	L)
L	00-19	F-3	20	10	F	Line
BN						
OFF A	0-9, 0'-9'	A-2	20	D	G	Blank Number - Off. A
OFF B	0-9, 0'-9'	A-3	20	D	G	Blank Number - Off. B
B		A-2 E-3 H-4	20 10 1	19 19 19	G) G) G)	Block Blank
R	5, 6, 7	A-4	3	17	D	Resistance
REG	1, 2	A-4	2	17	D	Register
S		F-2	1	17	E	Start
M		F-2	1	17	E)	Midpoint
M1		F-2	1	17	E)	
E		F-2	1	17	E	End
IN	0-9	F-2	10	17	E	In
OT	0-9	F-2	10	17	E	Out
ZB		A-4	1	2	J	ZB Relay
ZB-HB		D-4	1	2	J	ZB-HB
STX	00-24	NC	25	3	I	Start) Extra
HBX	00-24	NC	25	3	I	Hundred Block) Number
BNX	0-2, 0'-1'	NC	5	B	I	Blank Extra) Translator Number (500)) Points

in Paragraphs 4.01 and 4.02 are omitted and an SH relay is associated with the hundreds series as described in Paragraph 4.04.

4.04 Associating an SH Relay: Cross-connect the ST lead (terminal strip D) to one of terminals SH-0 to SH-19 (terminal strip E) which corresponds to the assigned SH relay.

4.05 Connection of SH Relay Contacts: Each SH relay (split-hundred) has a set of terminals SH-ST, SH-HB, SH-TB, and AL for each twenty-line numbers, designated 00, 20, 40, 60, and 80. These terminals shall be cross-connected as described in Paragraph 4.06 for twenty blocks containing the listed number of an alternate number group allotter, as described in Paragraph 4.07 for twenty blocks not containing the listed number of an allotted PBX, and as described in Paragraph 4.08 for a twenty block containing the listed number of a PBX using the block allotter.

4.06 For Twenty Blocks Containing the Listed Number of a PBX Using the Alternate Number Group Allotter: Cross-connect SH-ST (terminal strip B) to one of terminals ALC-ST 0 to ALC-ST 19 (terminal strip A) depending on the number of the assigned set of allotter contacts. Cross-connect SH-HB (terminal strip B) to one of terminals ALC-HB 0 to ALC-HB 19 (terminal strip A) depending on the number of the assigned set of allotter contacts. In offices having terminal strips arranged in accordance with Figs. 2, 3, or 4, cross-connect SH-TB (terminal strip F) to one of terminals ALC-TB 0 to ALC-TB 19 (terminal strip E). In offices having terminal strips arranged in accordance with Fig. 1, cross-connect SH-TB (terminal strip B) to one of terminals ALC-TB 0 to ALC-TB 19 (terminal strip A). These cross connections depend upon the number of the assigned set of allotter contacts. Cross-connect terminal AL (terminal strip B) to terminal AL (terminal strip C) if the allotted PBX is not a free group, or to terminal AF (terminal strip C) if the allotted PBX is a free group.

4.07 For Twenty Blocks Not Containing the Listed Number of an Allotted PBX: Cross-connect SH-ST (terminal strip B) to the proper NG-ST terminal (terminal strip C). Cross-connect SH-HB (terminal strip B) to the proper NG-HB terminal (terminal strip C) determined as in Paragraph 4.02. In offices having terminal strips arranged in accordance with Figs. 2, 3, and 4, cross-connect SH-TB (terminal strip F) to one of terminals TB 0 to TB 4 (terminal strip G) as required. In offices having terminal strips arranged in accordance with Fig. 1, cross-connect SH-TB (terminal strip B) to one of terminals TB 0 to TB 4 (terminal strip C) as required. If the normal end-of-block hunting progression prevails, these terminals are as follows:

SH-TB	TB
00	0
20	1
40	2
60	3
80	4

Where nonconsecutive end-of-block hunting is to be established, the SH-HB and the SH-TB cross connections shall be made as described in Paragraphs 4.26 to 4.30. Cross-connect terminal AL (terminal strip B) to terminal NAL (terminal strip C) when the twenty block is neither allotted nor free, or to terminal NAF (terminal strip C) where the twenty block is not allotted but contains free lines.

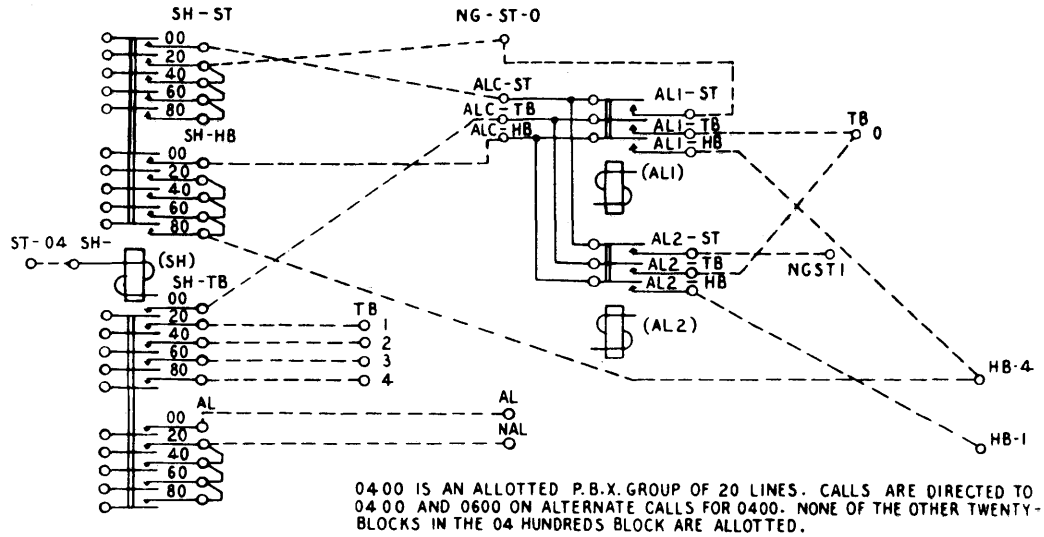

Fig. 6 - Allotment of a PBX Between Two Number Groups

4.08 For Twenty Blocks Containing the Listed Number of a PBX Using the Block Allotter: Cross-connect SH-ST to the assigned ALC-R terminal. Cross-connect SH-HB to the proper ALC-RHB terminal. Cross-connect SH-TB to one of terminals ALC-RTB. The SH-HB terminals for all PBXs requiring the block allotter are strapped and connected to the ALC-RHB and similarly the SH-TB terminals are strapped and connected to the ALC-RTB. Cross-connect terminal AL to terminal NAL when the twenty block contains no free lines, or to terminal NAF when the twenty block contains free lines.

Note: Refer to Paragraphs 4.45 to 4.49 for making auxiliary line, block allotter and block register cross connections on the miscellaneous frames for the block allotter circuit.

(C) Cross Connections of Allotter Relay Contacts

4.09 There are twenty sets of allotter relay contacts, 0 to 19, which serve allotted PBX groups using the alternate number group allotter. The common side, ALC-ST, ALC-HB, and ALC-TB is cross-connected as described in Paragraph 4.06. The two allotter relays, AL-1 AL-2, each have twenty sets of contacts AL-ST, AL-HB, and AL-TB. The AL-1 contacts shall be wired to direct the call to the listed number of the PBX groups using the alternate number group allotter, while the AL-2 contacts shall be wired to direct the call to the nonlisted series of the allotted PBX group. Fig. 6 shows a typical case of allotment.

Note: Where the multioffice feature is employed, allotter 2 can be cross-connected to a number group of the unit other than that used for allotter 1. However, PBX lines may be allotted over two crossbar units only when arranged for combined line groups and "A" and "B" office translation.

4.10 In offices having terminal strips arranged in accordance with Figs. 2, 3, and 4, terminals AL-1 SL (0-19) and AL-1 HB (0-19) terminate at the D terminal strip in the first and third rows from the bottom, respectively. Terminals AL-1 TB (0-19) terminate at the H terminal strip in the fourth row from the bottom. Terminals AL-2 ST (0-19) and AL-2 HB (0-19) terminate at the D terminal strip in the second and fourth rows from the bottom, respectively. Terminals AL-2 TB (0-19) terminate at the H terminal strip in the fifth row from the bottom. Terminals AL-ST shall be cross-connected to the proper NG-ST terminal (terminal strip E), terminals AL-HB shall be cross-connected to the proper NG-HB terminal (terminal strip E), and terminals AL-TB shall be cross-connected to the proper TB terminal (terminal strip G) as previously described.

4.11 In offices having terminal strips arranged in accordance with Fig. 1, terminate AL-1 ST (0-19) and AL-1 HB (0-19) terminate at the E terminal strip in the fourth and second rows from the bottom respectively. Terminals AL-1 TB (0-19) terminate at the D terminal strip in the row below the top. Terminals AL-2 ST (0-19) and AL-2 HB (0-19) terminate at the E terminal strip in the top and third rows from the bottom respectively. Terminals AL-2 TB (0-19) terminate at the D terminal strip in the top row. Terminals AL-ST shall be cross-connected to the proper NG-ST terminal (terminal strip D), terminals AL-HB to the proper NG-HB terminal (terminal strip D), terminals AL-TB to the proper TB terminal (terminal strip C), as previously described.

(D) Cross Connections for Line Link Load Registration

4.12 Provision is made so that the load point at which the line link load registers will be scored may be varied. The terminals involved are REG 1, REG 2, R5, R6, and R7, all located in the A terminal strip. The cross connections required for each number of busy links which are to operate the registers are:

No. of Busy Links	Connect Together
3 or more	R5, R6, R7, REG 2
4 " "	R5, R6, REG 2
5 " "	R5, REG 2
6 " "	None
7 " "	R5, REG 1
8 " "	R5, R6, REG 1
9 " "	R5, R6, R7, REG 1

Note: The existing arrangement should not be changed without proper authorization.

(E) Cross Connections for Channel Preference

4.13 The order in which channels are preferred in completing terminating calls is determined by a number of cross connections at the F terminal strip. This order must agree with the district group preference established in the line link controllers. These cross connections may be changed when it appears desirable from a wear standpoint to redistribute the traffic. Table 5 tabulates the cross connections required for each order of channel preference.

4.14 For example, when it is desired to arrange the order of selection of channels in the order of 7, 9, 8, 0-6, the existing

cross connections on terminals IN0-9, M, and E should be removed and cross connections made as follows:

Connect	IN0	to	0T8
"	IN1	"	0T0
"	IN2	"	M1
"	IN3	"	0T2
"	IN4	"	0T3
"	M	"	0T1
"	IN5	"	0T4
"	IN6	"	0T5
"	IN7	"	S
"	IN8	"	0T9
"	IN9	"	0T7
"	E	"	0T6

Note: The existing arrangement should not be changed without proper authorization.

(F) Cross Connections for Intercepting Relays

4.15 There are four intercepting relays which serve to direct calls to the intercepting trunk circuits, LIN (local intercept), TIN (toll intercept), LTI (local trouble intercept), and TTI (toll trouble intercept). Each intercepting relay has four terminals, ST, HB, TB, and L terminating at terminal strip E. The cross connections of each relay are made so as to direct the calls to the first line of the corresponding group of trunks.

Note: The existing arrangement should not be changed without proper authorization.

4.16 In offices having terminal strips arranged in accordance with Fig. 1, cross-connect ST to NG-ST (terminal strip D) of the number group containing the trunks, HB to NG-HB (terminal strip D) to operate the proper hundred-block relay, TB to one of terminals TB 0 to TB 4 (terminal strip F) to operate the proper twenty-block relay, and terminal L to one of terminals L0 to L19 (terminal strip F) corresponding to the position of the first line of the trunk group in the twenty block.

4.17 Single offices having terminal strips arranged in accordance with Fig. 2 may be divided into physical and theoretical offices. In such cases, there will be two sets of cross connections, AP for the physical office and AT for the theoretical office for each of the local and toll intercept, ST, HB, TB and L leads. These punchings for the physical office or for the undivided single office are located on terminal block E-4, and the punchings for the theoretical office are located on terminal block E-1. The ST and HB punchings shall be cross-connected to the proper NG-ST and NG-HB punchings respectively, located on the same terminal block. The TB punching shall be cross-connected to one of the TB 0-4 punchings on terminal block F-3, to operate the proper twenty-block relay. The L punching shall be cross-connected to one of the L0 to L19 punchings on block F-3 corresponding to the position of the first line of the trunk group in the twenty block. The local and toll intercept punchings for the theoretical office are located on terminal block E-1 and shall be cross-connected to the same points described above.

4.18 In multioffice arrangements, there are local and toll intercept punchings for each A and B office. The ST, HB, TB, and L punchings for each of the four kinds of intercept for each office are located on block E-4. Each A and B office in turn may be divided into physical and theoretical offices. In such cases there will be local and toll ST, HB, TB and L cross connections for each office so divided,

TABLE 5

Order in Which Idle Channels are Selected	Cross Conn. Term. at the Top of the "S", "M1", or "0T" Term. Indicated in the Same Vertical Column for the Order Req.										
	IN0	IN1	IN2	IN3	IN4	M	IN5	IN6	IN7	IN8	IN9	E
0,2,1,3-9	S	0T2	0T0	0T1	0T3	0T4	M1	0T5	0T6	0T7	0T8	0T9
1,3,2,4-9,0	0T9	S	0T3	0T1	0T2	0T5	0T4	M1	0T6	0T7	0T8	0T0
2,4,3,5-0,0-1	0T9	0T0	S	0T4	0T2	0T6	0T3	0T5	M1	0T7	0T8	0T1
3,5,4,6-9,0-2	0T9	0T0	0T1	S	0T5	0T7	0T3	0T4	0T6	M1	0T8	0T2
4,6,5,7-9,0-3	0T9	0T0	0T1	0T2	S	0T8	0T6	0T4	0T5	0T7	M1	0T3
5,7,6,8,9,0-4	M1	0T0	0T1	0T2	0T3	0T9	S	0T7	0T5	0T6	0T8	0T4
6,8,7,9,0-5	0T9	M1	0T1	0T2	0T3	0T0	0T4	S	0T8	0T6	0T7	0T5
7,9,8,0-6	0T8	0T0	M1	0T2	0T3	0T1	0T4	0T5	S	0T9	0T7	0T6
8,0,9,1-7	0T8	0T9	0T1	M1	0T3	0T2	0T4	0T5	0T6	S	0T0	0T7
9,1,0,2-8	0T1	0T9	0T0	0T2	M1	0T3	0T4	0T5	0T6	0T7	S	0T8

AP to indicate the A physical office, AT to indicate the A theoretical office, BP to indicate the B physical office and BT to indicate the B theoretical office. The physical cross connections for both offices are located on block E-4 and the theoretical cross connections for both offices are located on block E-1. The ST and HB punchings for offices A and B or AP and BP shall be cross-connected to the proper NG-ST and NG-HB punchings, respectively, located on the same terminal block. The TB punchings for offices A and B or AP and BP shall be cross-connected to one of the TB 0-4 punchings on block F-3, to operate the proper twenty-block relay. The L punchings for offices A and B or AP and BP shall be cross-connected to one of the L0 to L19 punchings on block F-3 corresponding to the position of the first line of the trunk group in the twenty block. The local and toll intercept punchings for the A and B theoretical offices are located on block E-1 and shall be cross-connected to the same points as described above.

(G) Cross Connections for Blank Numbers and Temporary Routing of Blocks of 100 Lines to Intercepting Operator

4.19 Unequipped 500 Block: In single office arrangements, terminal block A-2 has twenty BN punchings, one for each block of 500 directory numbers.

4.20 In multioffice arrangements, terminal block A-2 has twenty BN punchings, one for each block of 500 directory numbers for office A. The twenty BN punchings for office B are located on terminal block A-3.

4.21 The punchings for a single office unit or for each of the multioffice units are designated 0 to 9 and 0' to 9'. These numbers represent the thousands digit of the dialed number, the digit with the marking (') indicating the upper 500 numbers of the thousand and the digit without the marking (') indicating the lower 500 numbers of the thousand. When no numbers in a block of 500 are assigned to lines, the corresponding BN punching shall be connected to the B punching to cause the marker to route any calls to the intercepting operator.

4.22 Unassigned or Unequipped 100 Block: In single office arrangements, terminal strip D has 100 ST and 100 HB punchings numbered 00-99, an ST and an HB punching per 100 subscriber numbers. The first digit (0-4 at the left and 5-9 at the right) represents the thousands digit of the dialed number. The second digit (0-9 at the bottom of the section) represents the hundreds digit. Usually the ST punching is cross-connected to the NG-ST punching representing the number group connector to which the hundred numbers are assigned and the HB punching to the NG-HB which will operate the proper hundred block relay HB in the number group connector. When no number in the hundred block is assigned but there are assigned numbers in the block of 500 of which it is a part, the ST lead is not cross-connected and the HB punching shall be cross-connected to the B punchings located on terminal block E-3, to cause the marker to route any calls to the intercept operator.

4.23 In multioffice arrangements there are 100 ST punchings for office A and 100 ST punchings for office B located on terminal strip D. The 100 HB punchings for office A are located on terminal strip D and are cross-connected as described in Paragraph 4.22. The 100 HB punchings for office B are located on terminal strip B and are cross-connected in the manner described in Paragraph 4.22. These HB punchings shall be connected to the B punchings located on terminal block A-2 instead of to the B punchings located on terminal block E-3.

4.24 Block of 100 Numbers Temporarily Intercepted: Occasion may arise where it is desirable temporarily to route calls to certain blocks of 100 numbers to the intercept operator. To do this, remove the ST and HB cross connections and cross-connect the HB to any one of the B terminals (terminal strip E).

4.25 Individual Lines: Where individual lines are to be routed to intercept, refer to the section covering number group and block relay frame and line distributing frame cross connections.

(H) Cross Connections for Nonconsecutive End-of-Block Hunting

4.26 Ordinarily end-of-block hunting progresses in regular order through the twenty blocks of a hundreds series. However, provision may be made so that the twenty blocks of a particular hundred block may be hunted in any desired order, or the hunting may be over the twenty blocks in two or more hundred blocks in any desired order, provided that both hundred blocks are in the same number group. This is accomplished by changing the cross connections at the SH terminal strip at the block relay frame to reassociate the twenty-block relays with the hundred-block relays, and making corresponding changes in the TB cross connections at the split hundred relay of the terminating markers.

4.27 Requests to establish nonconsecutive end-of-block hunting will be made by the Traffic Department. Three examples of nonconsecutive end-of-block hunting are shown in Paragraphs 4.28, 4.29 and 4.30.

4.28 Nonconsecutive End-of-Block Hunt in a Hundreds Series (Example 1): The following order of hunting is to be established:

Start of Hunt	1500 - 1519	
	1580 - 1599	
	1520 - 1539	
	1540 - 1559	
	1560 - 1579	End of Hunt.

A split hundred, SH relay, is associated with the 1500 series, and the SH-ST and SH-HB terminals of all the twenty blocks are cross-connected to reach the proper number group and operate the proper hundred-block relay. The SH-TB terminal for each twenty block of numbers shall be cross-connected to the TB terminal which corresponds to its position in the order of hunt. In addition, the strapping at the block-relay frame must be changed so that the corresponding twenty-block relays are reassociated with the contacts of the hundred-block relay in the same manner. For the example given the associations are as follows:

Terminating Marker		Block Relay Frame	
SH-TB	TB	HB Relay Cont.	TB Relay
00	0	TB 0	0
20	2	TB 2	1
40	3	TB 3	2
60	4	TB 4	3
80	1	TB 1	4

Fig. 7 shows this arrangement in schematic form.

4.29 Nonconsecutive End-of-Block Hunt Between Two Hundreds Series (Example 2): The following order of hunting is to be established:

Start of Hunt	1600-1619	1820-1839
	1880-1899	1680-1699
	1800-1819	1660-1679
	1620-1639	1840-1859
	1640-1659	1860-1879 End of Hunt

In this case both hundred series must be in the same number group and a split-hundred relay furnished for each hundred. The SH-ST terminal for each twenty block of lines is cross-connected to the proper NG-ST terminal. The SH-HB cross connections will be described later. The SH-TB terminal for each twenty

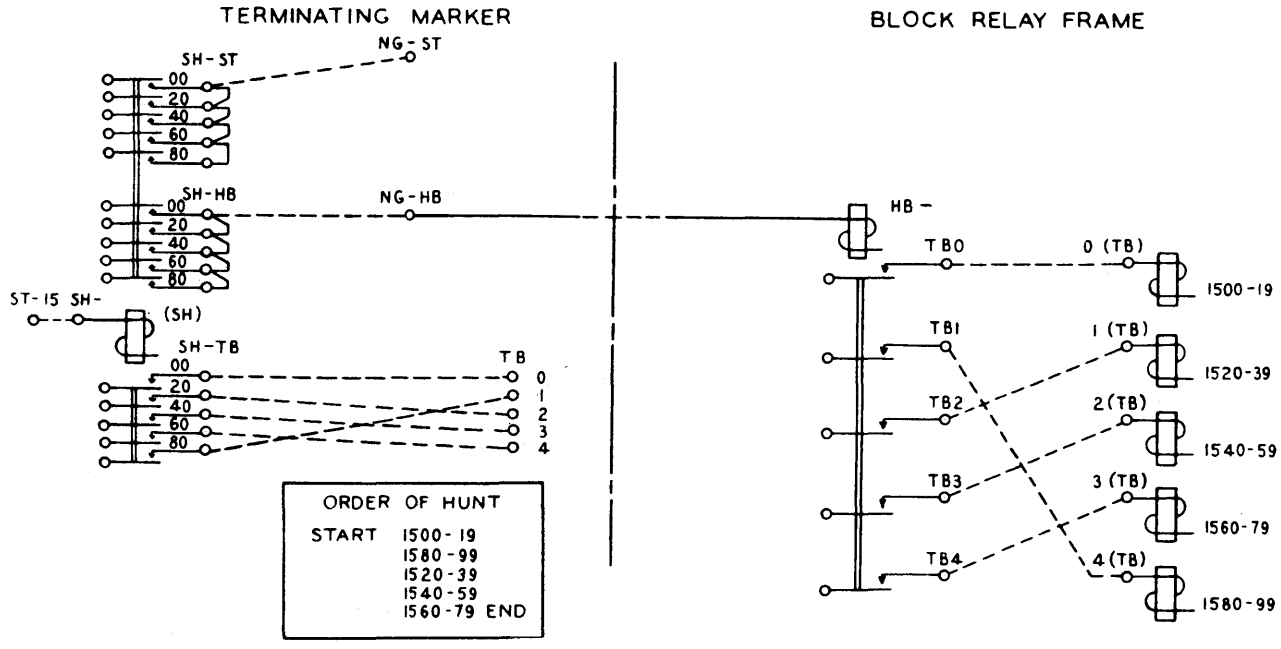

Fig. 7 - Nonconsecutive End-of-Block Hunt in Hundreds Series

block of lines shall be cross-connected to the TB terminal corresponding to its position in the order of hunt, or for this example:

	SH - TB	TB
1600	00	0
	20	3
	40	4
	60	2
	80	1

	SH - TB	TB
1800	00	2
	20	0
	40	3
	60	4
	80	1

In addition, the twenty-block relays must be arranged in a similar manner by rearranging the strapping at the block relay frame terminal strip. All twenty-block relays in a hunting series of 100 lines must be associated with the contacts of the same HB relay. The HB relay to be used for each set of five twenty-block relays shall be that relay which normally reaches the majority of the twenty-block relays. In this example there are three twenty blocks normally reached by HB relay 16 and two twenty blocks normally reached by HB relay 18 in one series. Hence, these blocks shall be associated with relay HB-16. In the other series there are three twenty blocks normally reached by HB relay 18 and two twenty blocks normally reached by HB relay 16. Hence, these blocks shall be associated with HB relay 18. The windings of the twenty-block relays shall be strapped to

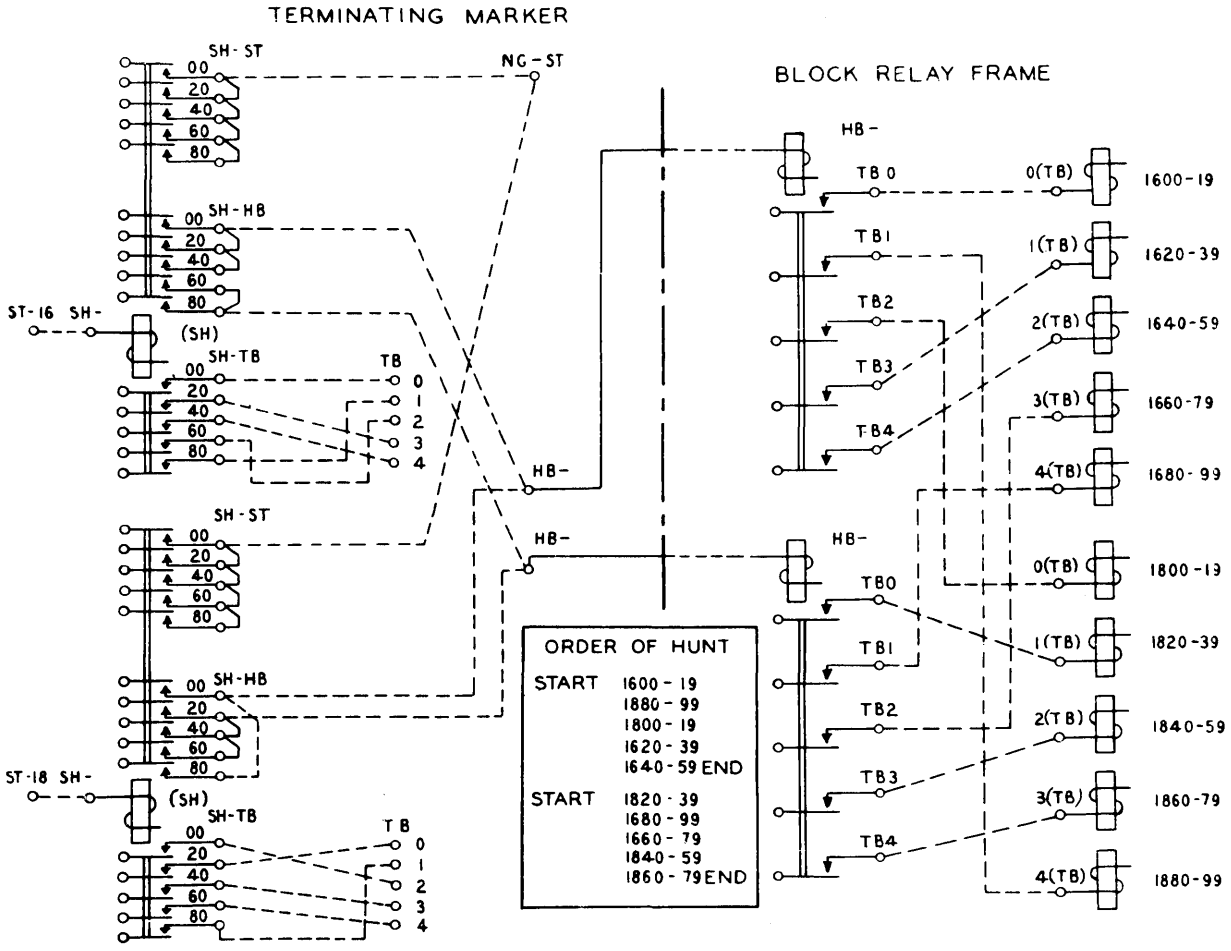

Fig. 8 - Nonconsecutive End-of-Block Hunt Between Two Hundred Series

the TB terminals of the HB relays, so that they are associated with the same TB terminals as the corresponding twenty-block number is cross-connected at the SH relay. The SH-HB terminals shall be connected to the proper NG-HB terminals so that each block of twenty numbers will use the HB relay with which the corresponding TB relay is reassociated. Fig. 8 shows this arrangement in schematic form.

4.30 Nonconsecutive End-of-Block Hunt Into Extra Numbers (Example 3): The following order of hunting is to be established:

Start	Start
1900 - 1919	X-0400 - 0419
X-0480 - X-0499	X-0420 - 0439
1920 - 1939	X-0440 - 0459
1940 - 1959	X-0460 - 0479
1960 - 1979	1980 - 1999 End

The method of connecting the SH relay contacts is the same as previously described. When one or more extra-number twenty blocks have been replaced by numbered twenty blocks, the remaining extra-number twenty blocks should be connected at the SH relay in the markers in their regular order so that jump-hunt cross connections may be installed on the basis of each twenty-block relay being operated by its normal TB lead. In regular markers no SH relay is required for the extra-number hundred block. Fig. 9 shows this arrangement in schematic form. If the office is equipped for testing extra numbers from the test desk, the special markers should be connected as shown in Fig. 9, using an SH relay for the extra-number hundred block.

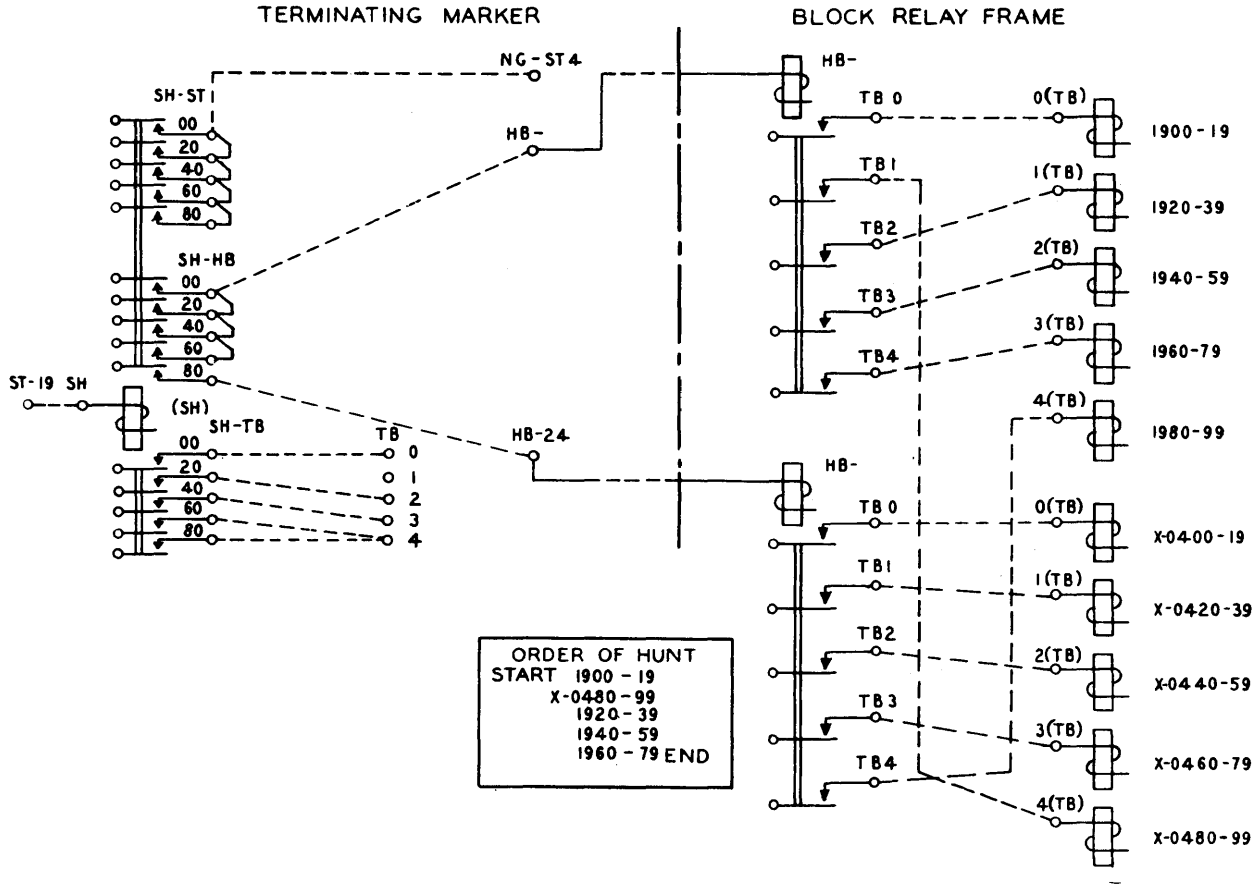

Fig. 9 - Nonconsecutive End-of-Block Hunt into Extra Numbers

(I) Extra-Number Translator Points - Special Markers Only

4.31 The two special markers are arranged to make the lines which have no directory numbers available for test. The cross connections to do this are made on the fourth section of terminal strips H and NC.

4.32 The STX (extra start) 00-24 terminals are cross-connected to the NG-ST terminals in accordance with the number group with which the hundred numbers are associated, except when the "hundreds" is split. When the hundred is split the STX terminal is cross-connected to one of the SH0 to SH19 terminals which corresponds to the assigned SH relay.

4.33 The HBX (extra-hundred block lead for each hundred series) 00-24, when equipped, shall be cross-connected to the NG-HB 24 terminal. When more than one HBX lead is used, they shall be strapped common on the NC terminal strip and one lead cross-connected to the NG-HB 24 terminal. No HBX cross connections are used when the hundreds are split.

4.34 In case a particular hundred extra numbers in the series 0000 to 2499 is not used, the corresponding HBX terminal is cross-connected to the B terminal. If five-hundred numbers in this series are not used, the corresponding BNX terminal is cross-connected to terminal B. When more than one HBX or BNX terminal is used, they shall be strapped common on the NC terminal strip and one lead cross-connected to the B terminal.

(J) Line Overload Control

4.35 When this feature is provided, it is used to reduce the holding time of the markers and the number groups when an overload of traffic to a particular number results in a high percentage of busy signals.

Twenty-Block Method

4.36 When this arrangement is provided, it should be used only when the subscriber involved is served by an entire twenty block which includes the listed number. Also this twenty block must be reached by a split-hundred relay.

4.37 If the subscriber number is allotted, the SH-HB to ALC-HB cross connection for the twenty block containing the listed number is removed. The SH-HB punching shall be connected to the ZB punching located on terminal block A-4. The ALC-HB punching shall then be cross-connected to the ZB-HB punching located on terminal block D-4. The associated NG-ST, SH-TB and AL cross connections should not be changed.

4.38 If the subscriber number is not allotted, the SH-HB to NG-HB cross connection for the twenty block containing the listed number should be removed. This SH-HB punching shall be cross-connected to the ZB punching located on terminal block A-4. The NG-HB punching should then be connected to the ZB-HB punching located on terminal D-4. The associated NG-ST and SH-TB cross connections should not be changed.

4.39 With the marker arranged in this manner, calls will be completed in a normal manner. The operation of the overload feature becomes effective upon the insertion of a make-busy plug into either the N (normal) or the P (preemptory) jack. When the plug is inserted into the N jack, the marker when completing a call to the cross-connected twenty block which results in a busy signal, will signal this fact to other markers arranged in a similar manner with plugs in the N jacks. These markers in turn, return a busy signal immediately thus releasing these markers. When the plug is inserted into the P jack, the marker upon registering the subscriber number, returns the busy signal immediately and releases.

Plug and Jack Method

4.40 When this arrangement is provided, it permits the control of traffic to any one number of the 10,000 directory numbers of either office A or office B.

4.41 One plug should be inserted into each of the thousands, hundreds, tens and units jack strips corresponding to the subscriber number. If there is a multioffice arrangement, a plug should be inserted into the 0A or the 0B jack, as the case may be. This feature is made operative by the insertion of plugs into the N or the P jacks as described in Paragraph 4.39.

(K) Cross Connections for Busy Signal Route Relay (BBT)

4.42 When it is required to give a busy signal instead of overflow on calls to coin lines with receiver off hook, the marker is equipped with a group of punchings designated BBT located on terminal strip E-2. Where individual incoming and line link frames are used, it is necessary to provide separate busy signal routes for office A and office B and therefore two groups of punchings are required. These punchings are then designated BBT-0A and BBT-0B (see Fig.4).

4.43 In offices having terminal strips arranged in accordance with Fig. 1, cross-connect BBT-ST to NG-ST (terminal strip D) of the number group containing the busy-back trunks, BBT-HB to NG-HB (terminal strip D) to operate the proper hundred block relay, BBT-TB to one of the terminals TB0 to TB4 (terminal strip F) to operate the proper twenty-block relay, and BBT-L to one of terminals L0 to L19 (terminal strip F) corresponding to the position of the first line of the trunk group in the twenty block.

4.44 In offices having terminal strips arranged in accordance with Figs. 2, 3 or 4, the number group start (NG-ST) and the number group hundred block (NG-HB) punchings are located on terminal strip E-4. Make the cross connections as described in Paragraph 4.43 except that connections to the NG-ST and NG-HB terminals are to be run to terminal strip E-4.

(L) Cross Connections on Miscellaneous Frames for PBX Block Allotter Circuit

4.45 The PBX block allotter, when furnished, prevents marker delays in returning the busy-back signal and permits the distribution of the lines of a PBX group over as many number groups in the office as may be desired. The PBX group may have as many as 1000 or more lines. By means of an auxiliary sleeve relay connected at the line distributing frame to each PBX line, a block allotter recognizes when all lines in a block are busy, and directs the marker via a block register circuit to a twenty block containing at least one idle line. When all lines in the PBX are busy the allotter causes the marker to return a busy signal at once. The limiting condition as regards size of PBX thus becomes one of incoming trunk and number group capacity rather than marker holding time. For cross connections required on the terminating marker cross-connection field see Paragraph 4.08.

4.46 The PBX block allotter equipment comprises three units: (a) auxiliary line unit (b) block allotter unit (c) block register unit. The auxiliary line unit ordinarily is mounted on a miscellaneous frame near the line distributing frame; the other two units are mounted on one or more miscellaneous frames near the terminating markers. The auxiliary line circuit provides a sleeve relay for each PBX line, generally grouped by twenty blocks. Unassigned sleeve relays within the block are blocked in an operated position using a 508A armature-blocking tool. When all lines of a block are busy the sleeve relay series circuit will operate the block allotter, which is normal when one or more idle lines exist. It is possible to associate more than one twenty block with the same block allotter but this will require the terminating marker to "end-of-block" hunt. The PBX block register circuit contains a route relay per block allotted PBX, a number of relays which are common to all block allotted PBXs and a register relay for each block allotter. The block allotter circuits for the same PBX are arranged in an assigned order to form a separate chain circuit for each terminating marker. When a terminating marker has a call for a block allotted PBX it operates its route relay and connects to its chain circuit at the starting point, advances past the allotters which are operated and reaches the first allotter which is found normal, and operates a PBX block register circuit relay corresponding to that normal allotter. This register relay corresponds to a twenty block which has at least one idle PBX line and closes the ST, HB, and TB leads to the assigned block for selecting the idle line.

4.47 Auxiliary Line Circuit Assignments: At the line distributing frame cross-connect the ALS and ANS terminals of a unit of auxiliary sleeve relays to the LS (line sleeve) and NS (number sleeve) of a subgroup of consecutive numbers in the same hundred block. This will form a block of lines for a PBX group in a particular number group.

4.48 Block Allotter Circuit Assignments: The total number of punchings and the pattern of connecting them will depend upon local conditions to be met, i.e., the number of markers, the number of allotters, and the preference chain. Since these conditions vary greatly between offices the following assumes a terminating group of four markers, and a PBX group of four blocks assigned to route relay 0. On the miscellaneous bay mounting the PBX block allotter circuit the following cross connections should be made:

On the Misc. T.S. On Unit Pchg. #	to Pchg. #	
110	195	
111	112	
113	114	
115	116	
117	150	(For Route Relay 0)

On the "R", "C", and "F" T.S. for Terminating Markers

MRK 0	MRK 1	MRK 2	MRK 3	Misc. T.S.	
R0 (Route To C0 Relay 0)	R0 to C1	R0 to C2	R0 to C3	Design.	Pchg. #
F0 to C1	F1 to C2	F2 to C3	F3 to C0		
F1 to C2	F2 to C3	F3 to C0	F0 to C1	(ATB # corresponds	
F2 to C3	F3 to C4	F0 to C1	F1 to C2	to marker #)	
F3 to				ATB0	100
	F4 to			ATB1	101
		F1 to		ATB2	102
			F2 to	ATB3	103

Note: When more than one equipment unit is used, the MTC and NTC leads (punchings 160 to 189 on the Misc. T.S.) are cross-connected as ties between the equipment units.

4.49 Block Register Circuit Assignments: Assuming the same conditions as in Paragraph 4.48 the following cross connections would be made on the miscellaneous bay mounting the PBX register relay circuit:

T.S. "A"	T.S. "B"	T.S. "C"
ALG-ST0 to assigned NG-ST	ALG-HB0 to proper NG-HB	ALG-TB0 to proper NG-TB
ALG-ST1 to assigned NG-ST	ALG-HB1 to proper NG-HB	ALG-TB1 to proper NG-TB
ALG-ST2 to assigned NG-ST	ALG-HB2 to proper NG-HB	ALG-TB2 to proper NG-TB
ALG-ST3 to assigned NG-ST	ALG-HB3 to proper NG-HB	ALG-TB3 to proper NG-TB

Note: The PC and ATB leads are cabled to the traffic register distributing frame and cross-connected to the proper registers there.